APPENDIX A

LIFE-CYCLE MANAGEMENT OF DATA

A. **INTRODUCTION**

1. **DoD Directive 8320.1 (reference (c) states that data administration "applies throughout the life-cycle of the 1Ss (information systems)" with management and acquisition reviews implemented by other referenced Directives. (See references (b), (t), (u), (v), and (w).)**

2. **Since an IS is often comprised of multiple subsystems, many or all of which may be at different phases of the life-cycle, the data administration function may be simultaneously involved in all phases of the IS life-cycle.**

3. **Data itself (once data and applications are separated in an AIS) has a life-cycle of its own separate from, but related to, the Automated Information System Life-Cycle (reference (b)).**

The stages of the data life-cycle are:

    a.   **Identification**

    b.   **Standardization**

    c.   **Acquisition**

    d.   **Maintenance**

    e.   **Archival**

4. **An important aspect of the IS life-cycle is the identification and definition of the data requirements of the system. This aspect of the IS life-cycle is the primary focus of the data administrator.**

B. **IDENTIFICATION PHASE**

1. **The Identification Phase of the data life-cycle is known as strategic data planning. Strategic data planning determines the information requirements of the function necessary to perform its mission. Strategic data planning implements a technology-independent set of techniques to arrive at a set of data and activity models that represent the business of the enterprise. These techniques take into account the mission, goals, and objectives of the enterprise. Current systems are analyzed for input, output, and processes (forms, reports, and code) to assess the feasibility for reverse engineering or re-engineering. The data models constructed**

act as a foundation for the development and definition of standard data elements. Thus, strategic data planning provides a framework where data become separate from their processes and constitute a resource independent of applications available for data use planning.

2.   Strategic data planning is based upon the data requirements of specific functional processes performed in support of the Department of Defense's mission. Strategic data planning identifies the data required to satisfy specific information requirements in the most efficient manner. Data requirements also can be identified through less formal means such as system change requests.

C.   **STANDARDIZATION PHASE**

1.   During the standardization phase, the information requirements identified through strategic data planning are given common or standard representations. The procedures for developing these standard representations are covered in detail in DoD 8320.1 -M-1 (reference (f)). The standardization phase of the data life-cycle also addresses actual data values (items). There are many instances where the format and attributes of the data values must be standardized to ensure consistency across the Department of Defense (for example, the code length for the data element "Unit Identification Code" is different in each Service). When data must be shared by more than one functional activity, the standardization of data values is essential.

2.   Strategic data planning establishes common data values and provides the framework for standard data use. It is in this area that the lines between standardization, acquisition, and maintenance become unclear. This is to say, once an information requirement is identified and the data elements representing that information requirement are defined, the data element domains may vary depending on usage.

3.   The standards established in this phase will apply to information such as the authority for a specific instance of metadata, the preferred acquisition method and source for populating a database with a certain data element, the agency and/or organization responsible for the accuracy and/or integrity of the actual data values, and numerous other pieces of information. It is useful to view metadata as a type of controlling framework that outlines a broad set of rules to which the data of interest to an enterprise must be in compliance. The DoD DAd is the caretaker of this framework and its interface with the Department of Defense's overall mission. CDAds perform the same functions within their own Components for their Component-level strategic data planning.

4.   The final product of the standardization phase is the approved DoD standard data and metadata including data entities, attributes, definitions, and values. Applicable federal, national, and international data standards will be adopted as DoD standards whenever possible.

D. ACQUISITION PHASE

1. Rules and standards governing acquisition and collection of data must be flexible enough to allow for varying data sources. The source and method of acquisition can have a significant impact on the reliability of the data. The quality and reliability of the data acquired must be measurable to allow for validation of the collected values. The sources from which data have been acquired must be monitored to maintain an audit trail to introduce historical quality measures.

2. Data to satisfy DoD information requirements may be obtained from an authoritative data source, designated in the standardization phase, (e.g., U.S. Postal Zip Code Directory for Zip Codes), from an external agent (other government agencies or commercial sources), some other means of direct collection (forms, monitoring devices, etc.), or it may be derived from' other source data. An objective of Goal 2 of DoD Data Administration, a single 'point-of-entry for data, supports the designation of an external agent or database as the authoritative source for specific types and/or classes of data if such designation will reduce redundant-collection efforts. A request to so designate may be submitted to the DoD DAd. The data from an authoritative data source, that is not subject to release or disclosure restrictions, must be made available to any user with a valid requirement and proper authorization. Authoritative source data subject to release or disclosure restrictions may only be released or disclosed on accordance with applicable restrictions.

E. MAINTENANCE PHASE

1. Once data are acquired by the Department of Defense, control must be exercised over its use. This phase involves ensuring that the data can be accessed only by authorized users, and that the data are accurate and timely. This is especially critical where the organization maintaining stewardship serves as the authoritative source of data for other applications and processes. The amount of time a data value spends in the maintenance phase is again dependent upon the requirements of the applications which use it.

   a. If data are imported from outside the Department of Defense, a DoD point of contact must be assigned to ensure the data complies with the documentation requirements specified in the DDRS.

   b. If data comes from within the Department of Defense, the functional data steward and the sole authoritative source of the data elements must work with the DoD DAd and the DBAd(s) to ensure the data complies with the documentation requirements specified in the DDRS.

2. Maintenance entails ensuring the integrity of the data in accordance with guidance provided in the previous phases. Procedures for identifying authorized users are established by the data steward, and appropriate access controls are

enforced through the implementing system(s). Data stewards are generally involved in all phases of the data life-cycle and serve as subject matter experts in the identification phase and as the designator of the authoritative source of data that spans all life-cycle phases.

F.   **ARCHIVAL PHASE**

1.   When data are no longer current, they are generally archived depending upon the requirements of the mission. For example, transactions in a payroll system are archived after a period of time to maintain a historical record. Archived data, while not current, are still useful, and are sometimes required by law or regulations.

2.   Archived data must be allowed for use in time-series (trend) analysis.